

# DPS5000 SDI-12

## Digital Pressure Sensing Platform

The new DPS5000 SDI-12 from Druck, part of the UNIK5000 family, offers integrated digital electronics to enhance the performance level of the UNIK 5000 Pressure Sensing Platform to levels unmatched by traditional analogue sensors. It uses SDI-12 protocol, over which fully compensated readings of Pressure and Temperature are sent, as well as control of many functions of the device.

### High Quality

With 45 years of pressure measurement experience, our field-proven Druck technology is at the heart of the new platform, resulting in a range of high quality, high stability pressure sensors.

### Expertise

We have the people and the knowledge to support your needs for accurate and reliable product performance; our team of experts can help you make the right sensor selection, guiding you and providing the help and tools you need. It is important that you ensure that the sensor materials and performance selected are suitable for your application.



## Features

- Ranges from 350 mbar to 70 bar
- Total accuracy to  $\pm 0.1$  % FS
- Stainless steel or Titanium construction
- Wide temperature range  $-40$  °C to  $+80$  °C
- Low power
- Customer set filter setting
- Excellent long-term stability

# DPS5000 SDI-12 Specifications

## Operating Pressure Ranges

### Gauge Ranges

Any zero based range from 350 mbar to 70 bar (6 to 1000 psi)

### Absolute Ranges

Any zero based range from 350 mbar to 70 bar (6 to 1000 psi)

### Barometric Ranges

Any upper range limit (URL) with a minimum span of 350 mbar (5 psi) between 700 mbar to 1300 mbar (10 to 18 psi)

### Over Pressure

2 × Pressure range for barometric range

4 × Pressure range for all other ranges

### Containment Pressure

6 × Pressure range (200 bar (3000 psi) maximum)

### Supply

Voltage: 6 Vdc to 30 Vdc

Current: <10 mA measure at 25 °C

15 mA peak

<50 µA stand by

### Output/Communications

SDI-12 V1.3

### Power on Time

1000 ms to acquisition from power on

### Insulation Resistance

>100 MΩ at 500 Vdc

## Performance

### Pressure Performance

Accuracy over the calibrated temperature range including zero and span setting and the effects of non-linearity, hysteresis and repeatability

A3 Premium: ±0.1 % FS over -10 to 50 °C (14 to 122 °F)

A2 Improved: ±0.2 % FS over -40 to 80 °C (-40 to 176 °F)

For barometric ranges FS is the URL

Accuracy effects increase pro-rate for pressure ranges below 700 mbar

### Temperature Performance

Accuracy over the calibrated temperature range

±3 °C (6 °F) with 0.1 °C (0.2 °F) Resolution

### Long Term Stability

±0.05 % FS /year Typical

±0.1 % FS Maximum at reference conditions

±0.2 % Maximum over five years at reference conditions is available by arrangement with the factory

Stability effects increase pro-rate for pressure ranges below 700 mbar

## Physical Specifications

### Environmental Protection

Up to IP68, see Electrical Connector section

### Operating Temperature Range

-40 °C to 80 °C (-40 °F to 176 °F)

### Pressure Media

Fluids compatible with Stainless Steel 316L and Hastelloy C276 or Titanium

Statement in accordance with the European Pressure Equipment Directive

### Enclosure Materials

Stainless Steel 316L PVDF (Nose cone) or Titanium (body) and cable sheath as specified

### Pressure Connectors

See the Ordering Information

### Electrical Connector

| Option Code | Description              | IP rating |
|-------------|--------------------------|-----------|
| 2           | Raychem Cable            | IP65      |
| 3           | Polyurethane Depth Cable | IP68      |
| 4           | Hytrek Depth Cable       | IP68      |

Note: Maximum cable length is 457 m (1500 ft).

### Wiring Details

| Core Colour | Function    |
|-------------|-------------|
| Black       | Case        |
| Red         | + VE Supply |
| Blue        | - VE Supply |
| White       | SDI-12 Data |
| Screen      | Case        |

### General Certifications

RoHS 2011/65/EU

CRN Certified 0F18611.513467890YTN for pressure ranges up to and including 100 bar

### CE Conformity

Pressure Equipment Directive 97/23/EC: Sound Engineering Practice

### EMC Directive 2014/30/EU

BS EN 61326-1:2013

BS EN 61000-6-1: 2007

BS EN 61000-6-3: 2007 + A1:2011

# Ordering Information

## 1) Select part number

### Main Product Family

|            |                           |                                      |                            |  |  |  |  |  |  |  |  |  |
|------------|---------------------------|--------------------------------------|----------------------------|--|--|--|--|--|--|--|--|--|
| <b>DPS</b> | Digital Output Transducer |                                      |                            |  |  |  |  |  |  |  |  |  |
|            | <b>5</b>                  | 5000 Series                          |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Diameter and Material</b>         |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>0</b>                             | 25mm Stainless Steel       |  |  |  |  |  |  |  |  |  |
|            |                           | <b>T</b>                             | 25mm Titanium              |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Electrical Connection</b>         |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>2</b>                             | Raychem Cable (See Note 1) |  |  |  |  |  |  |  |  |  |
|            |                           | <b>3</b>                             | Polyurethane Depth Cable   |  |  |  |  |  |  |  |  |  |
|            |                           | <b>4</b>                             | Hytrek Depth Cable         |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Electronics Option</b>            |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>E</b>                             | SDI-12 Protocol            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Compensated Temperature Range</b> |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>TA</b>                            | -10 to +50 °C (See Note 2) |  |  |  |  |  |  |  |  |  |
|            |                           | <b>TC</b>                            | -40 to +80 °C (See Note 3) |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Accuracy</b>                      |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>A2</b>                            | Improved                   |  |  |  |  |  |  |  |  |  |
|            |                           | <b>A3</b>                            | Premium                    |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Calibration</b>                   |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>CC</b>                            | Full Thermal               |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Hazardous Area Certification</b>  |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>H0</b>                            | None                       |  |  |  |  |  |  |  |  |  |
|            |                           | <b>Pressure Connector</b>            |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>- Stainless Steel</b>             |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PA</b>                            | G1/4 Female                |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PB</b>                            | G1/4 Male Flat             |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PC</b>                            | G1/4 Male 60° Int Cone     |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PD</b>                            | G1/8 Male 60° Int Cone     |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PE</b>                            | 1/4 NPT Female             |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PF</b>                            | 1/4 NPT Male               |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PG</b>                            | 1/8 NPT Male               |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PH</b>                            | M20 x 1.5 Male (3mm Bore)  |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PJ</b>                            | M14 x 1.5 60° Int Cone     |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PL</b>                            | 7/16-20 UNF Male 74° Ext   |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PN</b>                            | G1/2 Male                  |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PQ</b>                            | G1/2 Quick Connect         |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PR</b>                            | 1/2 NPT Male               |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PV</b>                            | 7/16-20 UNF Female         |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PW</b>                            | Depth Cone (G1/4 Female)   |  |  |  |  |  |  |  |  |  |
|            |                           | <b>RV</b>                            | R1/4 Male                  |  |  |  |  |  |  |  |  |  |
|            |                           | <b>- Titanium</b>                    |                            |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PA</b>                            | G1/4 Female                |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PB</b>                            | G1/4 Male Flat             |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PF</b>                            | 1/4 NPT Male               |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PH</b>                            | M20 x 1.5 Male (3mm Bore)  |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PN</b>                            | G1/2 Male                  |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PR</b>                            | 1/2 NPT Male               |  |  |  |  |  |  |  |  |  |
|            |                           | <b>PW</b>                            | Depth Cone (G1/4 Female)   |  |  |  |  |  |  |  |  |  |
|            |                           | <b>RJ</b>                            | M20 x 1.5 Male (8mm Bore)  |  |  |  |  |  |  |  |  |  |
|            |                           | <b>RK</b>                            | M20 x 1.5 Male (14mm Bore) |  |  |  |  |  |  |  |  |  |

### 2) Specify maximum working pressure unit and reference. Available units are:

| Symbol | Description        | Symbol              | Description         | Symbol              | Description                        |
|--------|--------------------|---------------------|---------------------|---------------------|------------------------------------|
| bar    | bar                | mmH <sub>2</sub> O  | millimeters water   | inHg                | inches mercury                     |
| mbar   | millibar           | cmH <sub>2</sub> O  | centimeters water   | Kgf/cm <sup>2</sup> | Kilograms force/centimeters square |
| psi    | pounds/square inch | mH <sub>2</sub> O   | meters water        | atm                 | atmosphere                         |
| Pa     | Pascal             | in H <sub>2</sub> O | inches water        | Torr                | torr                               |
| hPa    | hecto Pascal       | ft H <sub>2</sub> O | feet water          | MPa                 | Mega Pascal                        |
| Kpa    | Kilo Pascal        | mmHg                | millimeters mercury |                     |                                    |

### 3) Specify cable length and units:

Integer values in m or ft (maximum length 457 m (1500 ft)).

#### Notes:

1. Not available with a titanium body.
2. Choose A3-Premium accuracy with this option.
3. Choose A2-Improved accuracy with this option.

### Typical Order Examples

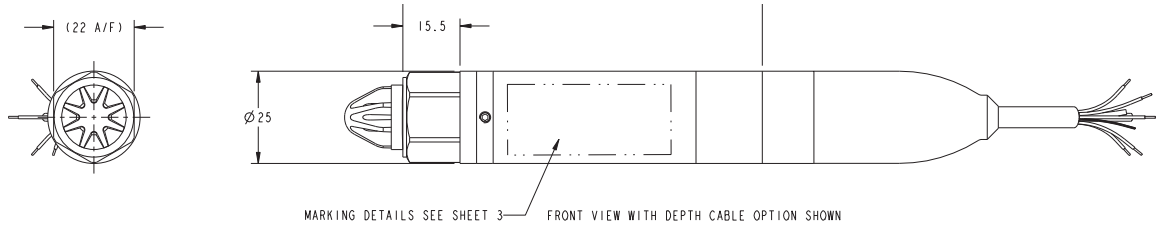
DPS503E - TA - A3 - CC - H0 - PW

700 mbar gauge 10m Cable

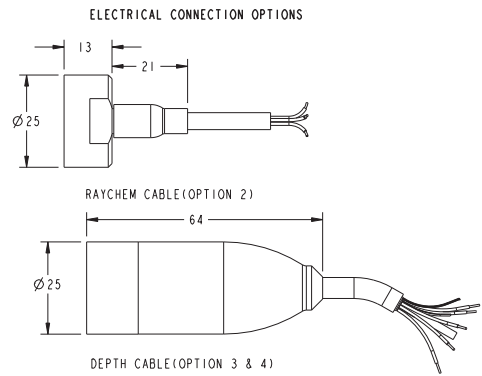
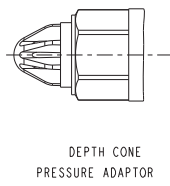
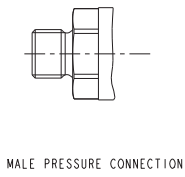
DPS5T4E - TC - A2 - CC - H0 - PA

10 bar absolute 10m Cable

# Mechanical Drawings



MARKING DETAILS SEE SHEET 3



*Note: All dimensions in millimetres.*